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ABSTRACT

A vehicle seat belt tension prediction system and method comprises an accelerometer having an output signal responsive to vertical acceleration of the vehicle, a seat weight sensor having an output signal responsive to the force exerted by a mass resting on the seat, and a processor means for calculating seat belt tension. The processor is provided with a plurality of inputs operatively coupled to the accelerometer output and seat weight sensor output. Suitable programming is provided to instruct the processor to calculate the average mass resting on the vehicle seat and predict the force that should be exerted on the seat for a measured level of vertical acceleration assuming zero belt tension. The processor then compares the actual force measured by the seat weight sensor with the predicted force to determine seat belt tension thereby obviating the necessity of complex hardware in physical contact with the seat belt system.

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